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tallest with his cane ; thus intimating, that, could a few of the chief citizens be destroyed, the fall of the city would be placed beyond a doubt. This anecdote illustrates the great point of distinction between ancient and modern civilization. Ancient civilization did not penetrate the mass of the community. It descended not to the cottage, farm, or workshop ; but was confined to the abodes of the rich, the halls of science, and the galleries of taste. It shone only on the tallest heads. These, of course, were at once lopped off or hopelessly humbled, in a civil revolution or barbarian inroad ; and the civilization, of which they had been the sole representatives, passed away with them. The populace left behind, having never participated in it, could not of course perpetuate it.

But modern, Christian civilization is individual in its character. It leavens the whole mass. It permeates every vein and artery of the body politic. It descends through every ramification of the social system. It dwells no less in the cottage than in the palace, no less in the workshop than in the drawing-room. It has for its defence, in every nation, not a chosen host, " fit champions, though few," but a grand national guard, a general militia, in which every name is enrolled, and every poor cottager and day-laborer bears arms for his fireside, his country, and his God. Modern civilization can, then, be extinguished only by exterminating the races of Christendom, or blotting out the light of Christianity. Its star of hope and promise is the still culminating star of Bethlehem.

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ART. VII.—*Journal of Researches into the Geology and Natural History of the various Countries visited by his Majesty's Ship Beagle, under the Command of Captain Fitzroy, R. N., from 1832 to 1836.* By CHARLES DARWIN, M. A., F. R. S., Secretary to the Geological Society. London : Henry Colburn. 1840. 8vo. pp. 629.

THE work before us has never been republished in this country. It is the account of a voyage undertaken by a

man of fortune, at the suggestion of the commander of the ship, who offered a part of his own accommodations to any scientific person who might be disposed to accompany the expedition. Mr. Darwin proposed to publish the results of his observation in a more permanent and systematic form, and meantime threw out these light sketches for the entertainment of readers who might be interested in subjects of the kind to a certain extent, but not disposed to go deep into the investigation. It is not a bad example for those who may have similar opportunities. There is a life and freshness in a journal written at the time, which cannot be preserved in more elaborate writing ; and though scientific readers might be thankful for something like method and arrangement, common readers hold such order in contempt, only requiring a narrative which shall amuse them. This is more easily said than done ; but whoever can succeed in it may do good service occasionally by inspiring in others a taste and enthusiasm similar to his own.

It is not without surprise, but with some feeling of relief, that we find ourselves at Porto Praya in the first page of the work, thus happily escaping the heart-sinking feeling of leaving home, together with sea-sickness, and the other pleasing varieties of a voyage with which travellers are wont to regale their readers. From that place Mr. Darwin passed rapidly to Brazil, where he is most of all impressed with the aspect of the forest ; the elegance of the grasses, the beauty of the flowers, the strangeness of the parasitical plants, and the deep glossy green of the foliage fill him with an admiration which words cannot express, and which, therefore, with judicious but uncommon self-denial, he makes no attempt to utter. But to a naturalist the sea presented objects of greater interest than the shore. The surface seemed entirely covered with a discoloring substance resembling bits of chopped hay, with jagged ends, each of which, when minutely examined, was found to consist of from twenty to sixty cylindrical filaments, with rounded extremities, and divided at regular intervals by transverse septa, containing a brownish-green flocculent matter. These *confervæ* must exist in immense numbers ; ships sometimes sail through them for miles together. On the coast of Chili, fifty miles from the shore, they observed a similar discoloration. On examination, the water appeared slightly stained, as if with red dust ; with the

microscope these points appeared to be animalcula of an oval form, which, the moment they suspended their motion, burst open at the end, sometimes at both ends, thus closing their activity and existence together. The color of the water was like that of a stream flowing through red clay ; and these creatures, which thus change the face of the ocean by their numbers, are so small as to be invisible to the naked eye.

On landing at Rio Janeiro, he was invited by an Englishman, who lived in the interior, to visit him at his estate ; and the ride of a hundred miles into the country gave him some opportunity of seeing the face of nature and of man, the latter, as he represents it, being the less attractive of the two. On arriving at a *vênda*, or inn, the custom was to bow low to the landlord, asking if he could do them the favor to give them something to eat. "Any thing you choose," was the courteous reply ; but it was the land of promise rather than performance, and on asking for the choice articles thus at their service, they were sure to be found wanting. When by their own exertions they had secured some fowls, pelting them to death with stones, they were compelled to wait, that every thing might be done in solemn order ; and if, overcome with hunger and fatigue, they timidly alluded to the expected meal, the reply was, "It will be ready when it is ready." At the best of these hotels, some inquiry being made of the landlord respecting a whip, which one of the party had lost, the answer was, "How should I know ? why did you not take care of it ? I suppose the dogs have eaten it." It is very pleasing to one interested in natural history to meet with these varieties of the human animal ; and yet it is certain that specimens of the same two-footed beast may be found in Old or New England. However, the author, like a man of the world, does not dwell very seriously on the subject, and we cannot learn that he made any attempt to add the creature to his collection.

Mr. Darwin was very much impressed with the beauty of the thin haze, which in warm climates softens the features of the landscape, and blends its colors into harmony. This appearance is familiar to us, but is not seen in the more humid atmosphere of England. He found the Lepidoptera large and brilliantly colored, principally butterflies,—the moths, contrary to what the rank vegetation promised, being com-

paratively few. He mentions the *Papilio feronia*, a frequenter of the olive groves, as the most remarkable of the number ; it is the only one which uses its legs for running, and it also has the power of making a clicking sound, like a toothed wheel passing under a spring catch ; of the fact he was certain, though he was unable to discover the mechanism which produced it. The insects which depend on the vegetable world for subsistence are very numerous ; the carion feeders are comparatively few. But the most abundant are the ants, great armies of which probably do the work which elsewhere is attended to by others. On entering a tropical forest, one is astonished at their labors. Beaten paths branch off in every direction, in which trains are seen going forth and returning, with burdens often larger than themselves. Sometimes they emigrate in great force. His attention was one day arrested by a multitude of spiders, cockroaches, and lizards, flying together, in a state little short of distraction, from some pursuing foe. Behind them was a black cloud of ants, which arranged their lines so as to inclose their prey. He placed a small stone in their way, which they might have avoided by going an inch round ; but it was not till they had attacked it again and again, and found it impossible to remove it, that they would submit to the humiliation of changing their course in deference to human power. Among the spiders he found a gregarious kind, assembled in large numbers, more amiable than most others of the race, which lay no restraint upon their passion for eating each other, a self-indulgence which destroys much of the comfort of their associations. This species forms its webs round the tops of large bushes, thus forming a tent for the common benefit, in which they dwell, for a wonder, at peace with each other, though Ishmaelites to all the rest of the insect world.

Mr. Darwin shortly after proceeded to Maldonado, and as the Beagle was employed two years in surveying south of the river Plata, he had ample time for examining the neighbouring country. It is not a very alluring description which he gives of the shores of this celebrated stream. The country is low and level, with few trees or inclosures to vary the monotony of its surface. The traveller encounters few inhabitants, and those whom he saw, as he describes them, are somewhat in the rear of modern civilization.

tion. They expressed their unfeigned astonishment at his practice of washing his face in the morning ; and some, who were rather better informed than the rest on the subject of geography, gave him to understand that London and North America were different names for the same country. In an excursion to the interior, he passed the night at the house of a rich landed proprietor. The windows were without glass, and the floors of hardened mud ; the furniture of the parlour consisted of a few rough and most uneasy chairs, and a couple of tables. The supper, provided for several guests, in addition to the family, was composed of two heaps, one of roasted, the other of boiled meat, with a few slices of pumpkin, without any other vegetable, or a mouthful of bread ; and to wash down these luxuries, a single jug of earthen ware was to serve the whole party. The most striking feature of the scenery is the absence of trees ; with the exception of a few willows, and trees introduced by the Spaniards, of which the peach supplies the city of Buenos Ayres with fuel, there are no forests, and no considerable growth of woods. Nor is it easy to account for their absence ; for, except in the immediate vicinity of the shore, the surface is sufficiently varied, and the supply of moisture greater than in many regions where woodlands abound. He says, however, that the limit of the forests coincides with that of the region which the damp winds travel over ; where they go laden with moisture from the Pacific, the country is thickly covered with wood.

In a broad bank of sand hillocks, which separate the Laguna del Potrero from the shores of the Plata, Mr. Darwin found a group of those vitrified tubes which are generally thought to have been formed by lightning entering the sand. The wind, blowing away the sand, which is not held in its place by any vegetation, has partially disclosed them ; they extend for several feet into the ground. Their internal surface is vitrified and glossy ; on the outside, the grains of sand are rounded, with a glazed appearance, but without any sign of crystallization. These *fulgurites* have been imitated in Paris, by passing strong galvanic shocks through finely powdered glass ; when salt was added, they were increased in size. As this was done with the strongest battery that could be procured, and with a substance so easily melted as powdered glass, it gives us a strong impression of the power of light-

ning, which could form a cylinder of a material so refractory as quartz, to the depth sometimes of thirty feet. The neighbourhood of the Rio Plata is very subject to electrical phenomena, and thunder-storms in that region are unusually dangerous as well as sublime.

From Maldonado he sailed to Rio Negro, the largest stream which enters the sea between the Straits of Magellan and the Plata, and about three hundred miles south of the latter. From the town near the mouth of the river, called El Carmen, or Patagones, he went to visit some salt lakes, which were fifteen miles distant. In winter, they are shallow collections of brine, which in summer is converted into snow-white salt, several inches thick at the margin, but increasing in depth toward the centre, its glossy whiteness strongly contrasting with the brown and desolate plains. The mud on the borders is black, with an unpleasant smell, probably owing to minute animals, like the *Cancer salinus*, which can only live with comfort and satisfaction in a very strong solution of salt. Flamingoes resort to these lakes, apparently for the sake of the living food which they supply already salted ; and when these birds die, they have their bodies embalmed by the element, without any expense or care of their own.

These salt lakes are not materially different from those in the neighbourhood of the Caspian, as Pallas describes them. A more remarkable appearance is the incrustation of salt on the surface of the ground. These are most abundant in the neighbourhood of Bahia Blanca, which Mr. Darwin reached by a land journey though a country resembling a desert. While the ground remains moist, nothing is seen but a plain of black, muddy soil, bearing a few succulent plants ; but a few days of hot weather change the aspect into that of a field of slightly drifted snow. This unevenness is owing to the tendency which the salt has to crystallize, like hoar-frost, around stumps and stems, or on the ridges of broken ground. The salinas occur in depressions on the elevated plains ; the *salitral*s, as they are called, are found in alluvial soils on the borders of rivers, or on level tracts, raised but little above the level of the sea.

On his way to Bahia, Mr. Darwin fell in with General Rosas, with whom he was better pleased than with his army, whom he describes as to all appearance a villainous banditti, over whom the general acquired so much influence by con-

forming himself to their tastes, that one of them alleged as a sufficient justification for a murder, "He spoke disrespectfully of the general, on which account I killed him." The spirit and energy which Rosas manifested in organizing bands to defend his large estates from the predatory attacks of the Indians first recommended him to the notice of the public ; and when he acted in a larger field, he inspired confidence by the same activity and vigor. A certain address of character, too, was not without its effect. He ordered, that no man, on penalty of the stocks, should carry his knife on Sunday, this day being sacredly set apart for gambling and drinking. One Sabbath, a high public officer called to see him, and the general, with his knife in his belt, came out to receive him. The steward reminded him of his unconscious violation of the law ; upon which he begged the functionary to excuse him while he went into the stocks, which he accordingly did. The steward, however, not sure that his proceeding would be relished, gave orders soon to release him ; as soon as this was done, he reminded the steward that he had broken the law by not keeping him in for the appointed time, and therefore ordered him to the vacant place, much to the edification of the people.

The soil in these regions generally is sterile, almost without trees, with few bushes, and presents but thin and scanty vegetation of any kind ; there is no evidence of any unfavorable change in this respect, yet it is certain that large animals formerly existed there in great numbers, which is inconsistent with the common idea that such animals require a luxuriant growth of food. But the southern part of Africa, which is eminently barren, is tenanted by the elephant, rhinoceros, hippopotamus, antelope, and giraffe, all large in size, and abundant in numbers ; no part of the earth compares with it in this respect, and at the same time no region has need to envy its vegetation. The size of the remains of animals, then, which geologists assign to the tertiary era, does not necessarily imply a very productive soil to feed them ; nor is it necessary to frame theories of great revolutions in climate to account for the existence of such animals ; so far as the quantity of vegetation is concerned, they might have lived on the soil in which they found their graves, without supposing it to be materially altered. The animals now existing at Bahia are small, but the fossil remains show that the

mastodon, the megatherium, the toxodon, an animal as large as a hippopotamus, together with many others on a scale but little inferior, once possessed this undesirable and barren land.

The ostrich is common in this region. It generally subsists on vegetable food, but often comes to the mud-banks on the shore for the purpose of catching small fish. Although shy and solitary in their habits, they are easily taken ; when several horsemen appear in a semicircle, they seem too much bewildered to avail themselves of their extraordinary swiftness. They generally prefer running against the wind, and if hard pressed, they often take to the water, where their progress in swimming is slow. Mr. Darwin had often heard of a rare bird, called the Avestruz Petise, very nearly resembling the ostrich, though not so large. One of these fell into his hands in Patagonia ; but it was not till the bird was killed and eaten, that he remembered what had been said of it ; fortunately, the skin had been preserved, and he was able to make out a tolerable specimen, which he considered a great windfall, others having made the attempt to obtain them without the least success.

Mr. Darwin made an interesting observation on the subject of the hibernation of animals, and the stimulus which is necessary to restore them. When he arrived at Bahia Blanca, on the 7th of September, it seemed as if all animals had deserted the sterile region for some better and happier land ; but on digging in the ground, lizards, spiders, and other creatures were found in a half-torpid state. On the 15th, a few animals began to appear ; and by the 18th, the plains were ornamented with the flowers of a pink wood-sorrel, cœnotheræ, and geraniums, and every thing announced the welcome return of spring. During the first eleven days of his sojourn, while all was lifeless, the mean temperature was  $51^{\circ}$ . On the eleven succeeding days, when all was kindling into life, the mean temperature did not exceed  $58^{\circ}$ ; so that the change of seven degrees only was sufficient to awaken all the activity of life. At Monte Video, which they had just left, the mean temperature from the 26th of July to the 19th of August was over  $58^{\circ}$  ; but with this elevated temperature, spiders, snails, toads, and lizards were lying torpid under the stones. This difference shows, that it is not the absolute degree of heat which

regulates these changes. Within the tropics, the hibernation of animals is governed by the times of drought. There are many animals which show no signs of life till water is thrown upon them ; after a rain, slight depressions in the ground are full of life, as if from equivocal generation ; while the solution of the mystery is, that the creatures are there already, and it is the moisture which restores the action of life.

From Bahia Blanca he passed by land to Buenos Ayres, through a country never very attractive, but made more uncomfortable at the time by the war which was carried on against the Indians. It is needless to say, that it was a war of extermination on the part of the Christians, so called, — *lucus a non lucendo* ; and, as in some other lands that we have heard of, all manner of outrage and oppression was considered perfectly justifiable ; the civilized man sinking into the brutality of the savage, and the savage borrowing a certain dignity from the wrongs which he endures, which lift him far above his base oppressor. For food on this journey, he and his party were much indebted to the ostrich ; the Gauchos threw leather thongs, with balls attached to them, with so much skill, that they wound round the legs of the flying bird and brought him to the ground. One of the nests of these birds had twenty-seven eggs in it, which, as each one is equal to eleven hen's eggs, afforded them a tolerable supply.

He found some confirmation of the story of the Jesuit Dobrizhoffer, who said that the hail-storms in that country were so severe that they often killed large numbers of cattle. There was a hail-storm on one of the nights of his journey, and in the morning they found thirteen deer lying dead ; soon after, seven more were brought in. As a man without dogs can do very little in this kind of hunting, he saw no reason to discredit their story ; fifteen ostriches were also found dead, besides great numbers of smaller birds. This gave them a very liberal supply of animal food, which was of more importance to the European than the native ; the Gauchos being epicures in their way, but all agreeing, that, however it may be with the jaguar, the cat is undeniably ; and they unanimously rejoice in it as excellent food ; a taste which has this advantage, at least, that they have all the field to themselves, with none to interfere with their

self-indulgence. The European cannot live for any length of time without bread ; but the Gauchos for months together taste nothing but animal food.

These countries often suffer intensely from long continued droughts, which have something of a periodical character. Between the years 1827 and 1830, so little rain fell, that all vegetation, even the thistles, failed, and the whole country became like a dusty high-road. Such quantities of the dusty soil were blown about, that landmarks were lost, and strife and confusion added to the universal suffering. Vast numbers of animals died. One proprietor at San Pedro, who was the owner of twenty thousand cattle, lost every one ; and though this is the most fertile part of the whole country, cattle were brought to it in vessels, to supply the inhabitants with food. These droughts are said to return once in about fifteen years ; they are sure to be followed by excessive and long continued rains. It is said that such periodical droughts are common in Australia, with an interval of ten or twelve years ; but it requires many observations to establish facts like these ; one or two accidental returns of such phenomena are often mistaken for the operation of a general law.

The account which Mr. Darwin gives of the estuary of the Plata is fatal to the common imaginations respecting that great river. He says, that, whatever figure it may make on the map, it is in reality but a poor affair, being little more than a vast expanse of muddy water, bounded by low and uninteresting shores. From Monte Video, he went by land up the Uruguay ; on the way he encountered the postman, bearing in his mail two letters, after passing through the most considerable towns, — affording a lively image of what our own post would have been, had the wise policy of the department been persisted in much longer. This is partly accounted for by the eulogium which he heard passed on some of the popular representatives by their constituents, who remarked, that, though not perhaps abounding in every accomplishment, "they could sign their names," which was enough to satisfy every reasonable demand. Some idea may be formed of the value of property, from the price of an estate with 3,000 cattle, 800 mares, and 600 sheep, with a small port for vessels, and wood to supply the market at Buenos Ayres. It was offered by the owner for

£ 2500, which was more than any one had been found willing to give. The large flocks of sheep are committed to the care of dogs, who assume the trust with a sense of responsibility, which is worthy of all praise. They are trained to it from their youth ; being bred in company with their future associates, and losing all desire to go with other dogs, who seem to resent their alienation, and always attack them when they come to the house for food ; but as soon as the shepherd's dog rejoins his flock, the others, as if conscious that he is under protection of the law, leave him with his helpless charge, and retreat with all possible expedition. It has been remarked, that domesticated animals consider man a member of their society, and an alliance with him as fulfilling their law of associations. The shepherd-dogs seem to embrace sheep in the same category ; and the house-dogs probably get their moral sense with respect to property more from certain lessons which man is apt to administer, than from any confused ideas on the subject of power and justice, to which he ascribes their proceedings.

In these countries, Mr. Darwin was struck with the polite and dignified manners which are found in all ranks, if ranks can be spoken of where all are so nearly equal. The son of a major in the army wished to leave his professional employment of making paper cigars, and to accompany the traveller as his servant or guide. The general toleration of foreign religions, the freedom of the press, the attempts at education, and the liberal treatment of foreigners, are all good things ; but at the same time there is license, even to wildness, in morals and manners, an open corruption and indifference to blood, which perhaps may have grown out of the confusion of public affairs, but will require long and thorough reform, before these countries can rise among the nations, or become safe and desirable places of abode for man.

When the ship in which Mr. Darwin sailed was several miles from the shore, he was more than once surprised by a visit from insects in great numbers. One evening, about ten miles from San Blas, the seamen cried out that it was snowing butterflies ; and when he looked out, the air was filled with them as far as the eye could range ; some moths and hymenoptera accompanied them, and a calosoma was taken, which was the more remarkable, as insects of that

description seldom take wing. The day was calm, so that they could not have been blown off from the shore. On another occasion, seventeen miles from Cape Corrientes, on drawing in a net, which he had set to catch pelagic animals, he drew in a variety of beetles, alive, and apparently happy, though their prospect of setting foot on dry land again was exceedingly small. Once when the Beagle was to the windward of the Cape de Verde islands, and when the nearest point of land not directly opposite to the wind was 370 miles distant, a large grasshopper flew on board. More than once, when the ship was in the estuary of the Plata, sixty miles from the shore, the rigging was covered with gossamer spiders, each attached to its floating thread ; but this was less remarkable, because they can easily run on the surface of the water.

He made some observations on the movements of this class of insects, not the least interesting of all, but certainly the least beloved. He observed one, which resembled a citigrade, and therefore was not a gossamer, while standing on the top of a post, dart three or four threads from its spinner. As they glittered in the sun, they resembled rays of light, though they were not straight, but undulating ; the spider then left its station, and sailed out of sight in its ingenious balloon. M. Virey's observations would seem to prove that some spiders, without even this preparation for the voyage, have power to walk the air ; but perhaps it would be found, that, if there are no long threads, the feet are connected together by lines, which, however short and fine, answer the purpose of supporting a creature so light.

After a visit to Patagonia, which afforded them no discoveries nor observations of peculiar interest, they touched at Terra del Fuego, where man is found in the lowest stage of discomfort certainly, if not of degradation. The country is rough and irregular, and the climate variable ; it was there that two of Sir Joseph Banks's party perished with cold in January, which answers to midsummer in Europe. Gale follows gale in endless and stormy succession, and the troubled spirit of the Cape, as seamen have reason to know, is wholly unacquainted with the blessing of rest. The Fuegian dwelling does not afford the most perfect shelter from these changes. Externally it resembles a haycock, though perhaps it would be flattered by the comparison ; it consists only

of a few branches stuck in the ground, and thatched on one side with grass and rushes. The natives who came about the ship were nearly naked, and one woman entirely so. The sleet fell and thawed on the limbs of one who had with her an infant child. At night, they throw themselves down and sleep, like animals, on the wet ground. When the water is low, they must rise from this luxurious bed to pick up shell-fish from the rocks, and, both in summer and winter, the women dive to collect sea-eggs, or sit in their canoes with hair lines to draw small fish from the water. If a seal or the decaying carcass of a whale floats along, it is a day of high festival, and this, with a few berries or fungi, is their most epicurean fare. Without homes, clothing, beds, tolerable food, or any of those circumstances which are so important to us, they seem to think life worth having ; and doubtless there is value in mere existence ; certain it is, that there are few who are in any haste to resign it, however great their privations and troubles may be.

The fungus mentioned just now, which affords resources for food to the natives, is a curious production of nature. It is of a bright yellow color and globular form, of the size of a small apple, and adheres to the beech-tree. In the young state it is turgid and elastic from being filled with moisture. When cut in two, the inside is seen to consist of a white, fleshy substance ; and cup-shaped balls, of about one twelfth of an inch in diameter, are arranged at regular intervals, filled with an elastic, colorless, and transparent matter. Above them, the external skin is pitted, and as the fungus grows old, is ruptured, and the gelatinous mass, which doubtless contains the sporules, is disseminated. After this the surface becomes honeycombed, with empty cells, and the fungus shrinks and grows together ; and in this state, without any process of cooking, it is eaten by the Fuegians, recommended probably by the circumstance that they can get nothing better. In fact, with the exception of a few berries of a dwarf arbutus, it is all their vegetable food.

The *Fucus giganteus* of Solander, a species of kelp, grows on all the rocks, both on the coast and within the channels, and, by indicating the spot where they lie beneath the waters, it saves many a vessel from destruction. Though the stem is seldom more than an inch in diameter, it resists those great breakers of the Western Ocean, which are too much even.

for the rocks themselves. A few of them together will support the weight of the large stones to which they attach themselves, which can be lifted from the ground by them without falling apart. Captain Cook said that it grew to the length of more than sixty fathoms, and at Terra del Fuego and the Falkland islands, large beds are often found in ten and fifteen fathoms of water. The plant affords support and shelter to innumerable forms of life. The leaf is whitened with corallines ; on the flat surfaces, patelliform shells, mollusca, and bivalves are secured ; crustacea in vast numbers frequent every part of the plant : on shaking the roots, cuttle-fish, star-fish, crabs, sea-eggs, *Holothuriæ*, *Planariae* and nereidous animals all fall out together. These afford subsistence to seals, otters, and cormorants ; and the Fuegian, the lord of the soil, who has but a barren sceptre in his grasp, is deeply indebted to this provision, which saves him from the necessity, as he regards it, of sometimes being a cannibal for the sake of food.

After a visit at Valparaiso, the Beagle sailed again to the south, among the Chonos islands. Mr. Darwin found a wild potato, which seemed to him more likely to be the original of the cultivated vegetable than the maglia described by Molina, which Humboldt is disposed to regard as the parent stock. The maglia grows in Chili in its native soil, whence it was transported to the north to some distance, though, at the time of the Spanish conquest, it was unknown in Mexico. The other, to which Mr. Darwin refers, grows near the beach, in a sandy, shelly soil. They were in flower in the middle of January, but the tubers were small and few in number. When raw, they had the taste of the common potato ; but after the process of cooking, they became insipid and watery. Some of the vines rose to the height of four feet from the ground. It may be suggested, that they were probably imported ; but they grow on uninhabited islands, and as they are known and recognized by various races of the natives, are, without much doubt, the indigenous production of the ground. The same plant, then, is found in the barren regions of central Chili, where the rain does not fall for six months, and also in the damp forests of the southern islands ; in this resembling the cultivated potato, which makes itself at home wherever it may happen to be.

From Valparaiso, Mr. Darwin set out on an excursion to cross the Cordillera, and having ascended to a considerable height, on one of the patches of perpetual snow, he found the *red snow* described by Arctic navigators. He observed that the footprints of the mules were stained red, as if their hoofs had been slightly bloody ; at first, he thought it was dust which had blown from the mountains of red porphyry,—these extremely minute plants appearing like coarse grains, from the magnifying power of the crystals of snow. A small portion of it rubbed on paper communicated a faint rose tinge mixed with a little brick-red. He placed some of the discolored snow between the leaves of his pocket-book, and a month afterwards examined the traces on the paper. When scraped off, the specimens were of a spherical form, with a diameter of the thousandth of an inch. When living, on the snow, they are collected in groups, many lying close together. When immersed in any fluid, the central part appeared like a drop of red, oily matter, containing a few very small granules, which are probably the germs of a future growth.

There is a good deal of interest in Mr. Darwin's account of his passage over the mountains ; but the scenery has been described, and the difficulty and danger are well understood. In the higher ascent, they experienced that difficulty of respiration which is called *puna* by the Chilenos, who consider it a disease, and maintain that many have died of it ; persons, probably, who had some disease of the heart, and were overcome by the effort of ascending. The only sensation in himself, which he could ascribe to the rarefied atmosphere, was a slight stricture over the head and chest, and this was at once forgotten when he came in sight of fossil shells. Two of his companions, not aware that water, at the height of two miles, boils at a lower temperature, were vainly endeavouring to cook potatoes ; after boiling them the usual time, they came out as hard as they went in ; much to the surprise and displeasure of the hungry travellers, who, not able to account for it in any other way, inferred that it must be the fault of the pot, on which, accordingly, they bestowed appropriate benedictions. The dryness of the atmosphere appeared in the shrinking of the handle of a geological hammer, the hardening of articles of food like bread and sugar, and the preservation of the skin and parts

of the flesh of beasts which had perished on the road. To the same cause he ascribed the facility with which electricity was excited. Flannel, when rubbed in the dark, appeared as if it had been washed in phosphorus ; every hair on a dog's back crackled, and sparks came from linen sheets and the straps of the saddle.

He describes, what other travellers have noticed, the increased brilliancy of the moon and stars, when seen from a great elevation. The extreme clearness of the air gives a peculiar character to the scenery, and it is from this cause, quite as much as from the absence of objects of comparison, that the traveller judges incorrectly of the size and distance of the things within his view. During the day, the sky was very often covered with clouds ; but at night, when they cleared away, the great mountains, in the bright full moon, seemed hanging over them, as if they had been buried at the bottom of some deep ravine. Sometimes travelling is interrupted by storms, even in the depth of summer ; but the guides told him that there was no risk of a heavy snow-storm, without thunder and lightning attending it to give warning.

From Peru, the Beagle sailed to Tahiti, an island now drawn into the eddy of European politics, and suffering more from those who take to themselves the name of civilized than ever it did from the darkness in which it formerly lay. In the civilization of the present day there are about three parts of barbarism ; and in dealing with an unenlightened people, a Christian nation is sure to turn to them one of its savage sides, — a fact which is painfully illustrated in the history of every great nation of the present day. The people of Tahiti were then under the influence of missionaries, and were happily advancing in a course of improvement, which has since been miserably interrupted by the base proceedings of the French, intent, like their English neighbours, on making the possessions of others their own, without the least restraint of conscience or of shame. Mr. Darwin was greatly delighted with the appearance of the inhabitants. There was a mildness of aspect, which banished the idea that they were savages ; and an intelligence which showed them to be advancing in civilization. They received strangers with cheerful and friendly confidence, not aware, at the time, how soon they might have reason to regret that Europeans

had ever discovered their little island in the heart of the sea.

The land susceptible of cultivation is only a border of low alluvial soil, lying at the base of the mountains which form the interior of the island, and very little elevated above the level of the sea. It is protected from the waves by a coral reef, which encircles the whole island, forming a safe harbour for ships, and affording some passages through which they can enter. This fringe of soil has a most luxuriant vegetable growth ; and in the midst of orange, cocoa, banana, and breadfruit trees, are cleared fields, where yams, sweet potatoes, sugarcanes, and pineapples are cultivated. Through these forests or orchards, small winding paths lead to the scattered houses. The only way to go into the interior is to follow up one of the valleys which descend on the sides of the mountains.

The account which Mr. Darwin gives of the moral and social state of the islanders is full of interest, and must be regarded as the testimony of a perfectly impartial witness in favor of the efforts and success of the missionaries. He says that there is no truth whatever in the assertion, that they had become gloomy and superstitious ; on the contrary, they were remarkable for the cheerful kindness of their bearing ; and he thinks that the prevailing tone of morals is honorable both to the islanders and those who have taught them. He also intimates, what has been violently suspected before, that these unfavorable representations come from those who are disappointed at finding licentiousness less privileged than in former days, and who would fain restore the times when the heathen Christian may teach the Christian heathen the arts and refinements of his own most degrading sins. The captain of the Beagle was instructed to demand three thousand dollars as compensation for an English vessel which had been plundered ; an assembly was gathered to consider the subject ; the chiefs and people offered to contribute what was wanted ; and when the English captain suggested that their private property ought not to suffer for the crime of distant islanders, they said that they were grateful for his consideration, but they did it cheerfully for the sake of their queen.

From Tahiti they proceeded to New Zealand, where they were equally struck with what the missionaries had been able to accomplish, and that, too, against the resistance of for-

eign residents, many of whom are drunken, licentious, and contemptible, and yet rejoice in the name of Christian. But in spite of this opposition, houses are built, windows framed, fields cultivated, mills set in motion, and orchards grafted, by New Zealanders themselves. There were large fields of barley and wheat, potatoes and clover, and gardens containing not only the familiar vegetables, such as asparagus, beans, cucumbers, rhubarb, gooseberries, currants, and grapes, but many others peculiar to warmer countries. More attention is here paid to the arts of civilization than in Tahiti, where the same results are sought in direct religious instruction and improvement of the mind. This is, perhaps, because the mind of the Tahitian is of a higher order. In the northern part of the island, a majority are believed to profess the Christian faith ; and those who have not embraced it feel the influence of this wondrous religion in a sense of shame, which makes them less bold and confident in their views than in former days. Surely there is some reason to rejoice in such manifestations in this land of polygamy, murder, cannibalism, and all other atrocious crimes.

In his account of Australia, Mr. Darwin makes some remarks on the manner in which the aborigines waste and disappear before the Europeans who establish themselves among them. The famous law of population, so triumphantly put forward by Malthus, may have some application to the case of such a people, who do little or nothing to increase the means of subsistence on which they depend. At New Zealand, the strong and manly natives knew that their children were to pass away from the land ; in Tahiti, where infanticide has been abolished since the voyages of Cook, the inhabitants have diminished in numbers. But it also appears, and the accounts of New England voyagers go to confirm it, that diseases are introduced by ships, or rather by the intemperance which they bring with them, which do more than internal wars or any other cause to sweep the natives away. It is certain that waste and disappear they must ; but this no more justifies the proceedings of many civilized men in respect to them, than the well known fact that a man must die can be pleaded in excuse for one who murders him. It must needs be that they pass away ; but there is woe and retribution for those by whom they are dispossessed, if the order of nature is hastened by hardships and wrongs.

Mr. Darwin, at the close of his work, makes a summary of the advantages and discomforts of a five years' voyage, in which, though he is no enthusiast, he gives the preponderance to the former. Of the ocean he speaks with a coolness to which that element is but little used ; saying, that, after all its boasted glories, it is but a tedious waste, a desert of water. He speaks with some respect of a clear moonlight night upon the sea ; but as for the storm, with all its boasted sublimity, he thinks that it bears no comparison with the same agitation of the winds on shore. The scenery which he saw on his voyage was more varied and stupendous than Europe could have afforded him ; but after all his tastes as an observer of nature are satisfied, he seems to be most interested in the sight of man, in those earlier stages of barbarism through which our own ancestors must have passed. Doubtless, to some future age our own civilization will appear like a variety of barbarism, or at least like a transition state ; but meantime it is matter of study and reflection to observe those peculiarities out of which, or of something like which, our present social systems have sprung.

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ART. VIII.—*The Poets and Poetry of Europe, with Introductions and Biographical Notices.* By HENRY W. LONGFELLOW. Philadelphia : Carey & Hart. 1845. 8vo. pp. 779.

To the student of poetry, who is not acquainted with the languages of continental Europe, this large and handsome volume will bring a great store of amusement and instruction. Within a moderate compass, it gives him the means of gaining a connected view, and one as complete and perfect as can be obtained without a knowledge of the original tongues, of the poetical literature which exists in ten languages. Six of these, the Anglo-Saxon, Icelandic, Danish, Swedish, German, and Dutch, belong to the great Gothic family of the North ; while the remaining four, the French, Italian, Spanish, and Portuguese, are daughters of the Latin. We find here some of the editor's own beautiful translations, most of which, however, had previously ap-